



Zero-Emission Hydrogen Ferry Demonstration Project

The Bay Area Air Quality Management District, in partnership with Golden Gate Zero Emission Marine, was awarded a \$3 million grant by the California Air Resources Board to build the first hydrogen fuel cell passenger ferry in the United States. The vessel, named the *Water-Go-Round* will demonstrate a pathway to commercialization for zero-emission hydrogen fuel cell marine technologies. Applications of this technology go beyond passenger ferry service, including industrial freight transportation, government operations, marine research, and more. In Fall 2019, the *Water-Go-Round* will perform demonstrations of passenger and freight service between Port of San Francisco, Oakland, Redwood City, and the City of Martinez, and sightseeing trips in the San Francisco Bay and to the Farallon Islands.



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The *Water-Go-Round* will be a 70-foot aluminum catamaran, designed by Incat Crowther, and will have a top speed of 22-knots and a capacity to transport up to 84 passengers. The vessel is being built in Alameda, California by Bay Ship & Yacht. The fuel cell electric propulsion system is being provided by BAE Systems and will be powered by three independent 120 kW fuel cells built by Hydrogenics. The *Water-Go-Round* will have enough on-board hydrogen storage capacity for up to two days of normal operation. Golden Gate Zero Emission Marine is providing project coordination, technical management and expertise for the project and Sandia National Laboratories will analyze data collected from the project and conduct hydrogen safety training.

Dates: 05/25/2018 – Spring 2020

Grantee: Bay Area Air Quality Management District

Partners: Golden Gate Zero Emission Marine, Bay Ship & Yacht, BAE Systems, Hydrogenics, Red and White Fleet, Port of San Francisco, Sandia National Laboratories

Grant Amount:

CARB Contribution: \$3,000,000

Matching Funds: \$2,465,000

Project Total: \$5,465,000



Key Project Phases

The *Water-Go-Round* is a first-of-its-kind vessel, the development of which relies on the innovative vision of Golden Gate Zero Emission Marine and careful coordination between project partners, who are leaders in their fields. Project milestones were carefully developed to monitor the project schedule and to identify potential problems as early as possible. Key milestones include:

- Design of vessel and powertrain, including hydrogen storage and fueling procedures
- Procurement of powertrain hardware and fuel cells
- Ferry build and sea trials
- Demonstration of vessel operations and fueling
- Data collection and analysis
- Commercialization feasibility assessment

Status Updates

- The vessel, its powertrain, and its fuel cell and hydrogen storage components have all had their designs finalized.
- Since the vessel's keel was laid at Bay Ship & Yacht on November 8, 2018, construction on the ferry has begun and is scheduled to be complete in September, 2019.
- The vessel's fuel cells have been built and shipped by Hydrogenics. BAE is beginning testing of the propulsion system using one of the completed fuel cells.



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